

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present application:

Listing of Claims:

1. **(Currently Amended)** A method for treating an implant surface intended for implantation into bone tissue, said method characterized in comprising:

providing fluorine and/or fluoride on at least a part of the implant surface, and

providing a microroughness comprising pores having a root mean square roughness (R_q and/or S_q) of ≤ 250 nm, a pore diameter of < 1 μm and a pore depth of < 500 nm, wherein the implant surface is a metallic implant surface, by treating the metallic implant surface with an aqueous solution of hydrofluoric acid, resulting in an etching process, wherein the concentration of the hydrofluoric acid is less than 0.5 M.

2-27. **(Cancelled)**

28. **(New)** The method according to claim 1, wherein the pore diameter is within the range of 50 nm to 1 μm and the pore depth is within the range of 50 to 500 nm.

29. **(New)** The method according to claim 1, wherein a root-mean-square roughness (R_q and/or S_q) of ≤ 250 nm is provided.

30. (New) The method according to claim 1, wherein an average atomic concentration of at least 0.2 at% fluorine and/or fluoride is provided.

31. (New) The method according to claim 30, wherein the average atomic concentration of fluorine and/or fluoride is within the range of 0.4-7 at%.

32. (New) The method according to claim 1, wherein the metallic implant surface is treated for an etching period of up to 180 sec at room temperature.

33. (New) The method according to claim 32, wherein the concentration of the hydrofluoric acid is 0.1 M and the etching period is up to 60 sec at room temperature.

34. (New) The method according to claim 1, further comprising providing a macroroughness on the implant surface prior to providing the fluorine and/or fluoride and prior to providing the microroughness.

35. (New) The method according to claim 34, wherein the macroroughness is provided by blasting the implant surface.

36. (New) The method according to claim 1, wherein said metallic implant surface is made of commercially pure titanium or an alloy of titanium.

37. (New) An implant for implantation into bone tissue having an implant surface at least part of which has been treated with a method according to claim 1.

38. (New) An implant for implantation into bone tissue having an implant surface, wherein the implant surface is a metallic implant surface, at least part of the implant surface comprises fluorine and/or fluoride, and a microroughness which comprise pores having a diameter of $\leq 1 \mu\text{m}$ and a pore depth of $\leq 500 \text{ nm}$, wherein the microroughness comprises peaks having a peak width, at half the pore depth, of from 15 to 150% of the pore diameter.

39. (New) The implant according to claim 38, wherein the pore diameter is within the range of 50 nm to 1 μm and the pore depth is within the range of 50 to 500 nm.

40. (New) The implant according to claim 38, wherein the microroughness has a root-mean-square roughness (R_q and/or S_q) of $\leq 250 \text{ nm}$.

41. (New) The implant according to claim 38, wherein at least a part of the implant surface has an average atomic concentration of at least 0.2 at% fluorine and/or fluoride.

42. (New) The implant according to claim 41, wherein the average atomic concentration of fluorine and/or fluoride is within the range of 0.4-7 at%.

43. (New) The implant according to claim 38, wherein the implant surface further comprises a macroroughness.

44. (New) The implant according to claim 38, wherein said implant is a metallic implant.

45. (New) The implant according to claim 44, wherein said metallic implant surface is made of commercially pure titanium or an alloy of titanium.

46. (New) The implant according to claim 38, wherein the implant is a dental implant.

47. (New) The implant according to claim 38, wherein the implant is an orthopaedic implant.